Claim objections and §112 Rejections

The claims have been amended to overcome these rejections. Claim 4 has been cancelled. Claim 1 has been amended to provide an antecedent basis.

§ 102 rejections

The Examiner has rejected claims 1, 4 and 11 as being anticipated by Chin, USP 4,917,747. As noted above, claim 4 has been cancelled. For the reasons set forth below, Chin does not teach each of the elements of claims 1 and 11, however.

The claimed invention relates to a unique way of assembling and molding a thermoplastic sandwich containing a rigidizing insert. As recited in claim 1, the two sheeting layers of thermoplastic material that form the outside layers of the sandwich are first delivered between the mold halves and the rigidizing insert inserted between the two sheeting layers. The mold halves are then closed to bring the sheeting layers into contact with the insert, followed by compressing to form the panel.

As explicitly stated in claim 1, however, all of the claims require that the two sheeting layers of thermoplastic material be brought into contact with the insert ***by the mold halves*** (step c). In other words, the thermoplastic layer/rigidizing insert sandwich cannot be pre-assembled before these components are placed into the mold. This lack of pre-assembly reduces costs, reduces manufacturing time and reduces work areas and equipment, as the sandwich would otherwise have to be assembled elsewhere and transported to the mold halves.

The Federal Circuit has repeatedly held that, where, as here, the literal language of the claims logically set forth a specified order, that order serves as a positive limitation on the claims. *See Loral Fairchild Corp. v. Sony Electronics Corp.*, 181 F.3d 1313, 1321, 50 USPQ2d 1865, 1870 (Fed. Cir.

1999) ("We agree with the district court's claim construction. Claim 1 of the '674 patent recites a process sequence requiring formation of the insulation layer over the first gate electrodes prior to implantation of the barrier regions. *** By the literal language of the claim, the edges of the implantation barrier regions are aligned with the edges of the insulation layer; hence, the insulation layer must already be in place in order to align the barrier regions with it during ion implantation."); *Mantech Envtl. Corp. v. Hudson Envtl. Servs., Inc.*, 152 F.3d 1368, 1375-76, 47 USPQ2d 1732, 1739 (Fed. Cir. 1998))("Because the acidic conditions and the ferrous ion must be present before the hydrogen peroxide can undergo the Fenton-like reaction, step (d) must come after both steps (b) and (c). We hold, therefore, that the sequential nature of the claim steps is apparent from the plain meaning of the claim language and nothing in the written description suggests otherwise").

Contrast, for example, *Altiris Inc. v. Symantec Corp.*, 318 F.3d 1363, 1371, 65 USPQ2d 1865, 1869-70 (Fed. Cir. 2003), where the logical language of the claims did not impose a specific order, as discussed in MPEP 2111.01 ("Although the specification discussed only a single embodiment, the court held that it was improper to read a specific order of steps into method claims where, as a matter of logic or grammar, the language of the method claims did not impose a specific order on the performance of the method steps, and the specification did not directly or implicitly require a particular order").

In fact, ***none*** of the art cited by the Examiner as a basis for rejecting the claims teaches or suggests a method where sheeting layers of thermoplastic material are brought into contact with a rigidizing insert by mold halves. To the contrary, Chin shows that the thermoplastic material and rigidizing insert are pre-assembled before being placed into the mold. *See, e.g.*, Fig. 5. The specification of Chin describes this pre-assembly:

> Following the joining of sections 12, 14, the panel assembly is completed by positioning the core sections 12, 14 between an upper skin 24

and a lower skin26, as shown in Fig. 5. ***The completed panel assembly is then positioned in compression molding apparatus 28, 30 Fig. 6***

Chin, col. 5, line 67 – col. 6, line 4 (emphasis added). Thus, Chin explicitly teaches away from the claimed method which comprises (as step c) "closing the mold halves to bring the two sheeting layers of thermoplastic material in contact with the insert."

As such, the §102 rejection of claims 1 and 11 should be withdrawn, and these claims and the claims which depend therefrom allowed to issue.

§103 rejections

The Examiner has also rejected claims 5-10, 12 over Sanborn in view of Chin, and claims 2-3 over Chin in view of Svensson.

First and foremost, these additional § 103 references, Sanborn and Svensson, do not use molds at all, and thus cannot supply the element missing from Chin for claim 1 and its dependent claims: "closing the mold halves to bring the two sheeting layers of thermoplastic material in contact with the insert."

To the contrary, Sanborn teaches using nipper rollers 42, 50 and 46 to press sheets 22 and 24 against the intermediate backing layer 26. *See* Fig. 4. Furthermore, Sanborn is not directed to a molding process, nor does it teach or suggest that the process it describes could be adapted to a molding process. Moreover, nothing in Sanborn teaches or suggests that the intermediate backing layer 26 is itself a rigidizing insert or that this process could be used to deliver a rigidizing insert as called for by the claims. Rather, it is described as preferably being formed of an elastomeric material (Col. 3, line 63 – Col. 4, line 4), such as "recycled rubber" (Fig. 3 and Col. 4, lines 2-4).

Finally, as to Sanborn, any combination of references must be suggested by the prior art itself. *See, e.g.*, MPEP 707.02 (j). There is, however, no suggestion in Sanborn or Chin to combine the two references. Chin, as noted above, teaches that the sandwich must be pre-assembled before

being placed into the mold; there would be no motivation to combine such a reference with a nipper roller reference that suggests that materials making up the thermoplastic sandwich can be fed to and assembled directly between rollers. Indeed, there is no suggestion that the nipper rollers 40, 42 as taught in Sanborn to deliver a core material (Col. 4, lines 11-15, Fig. 4), could be used to deliver a rigidizing insert in the configuration taught by Chin.

Svensson suffers from similar deficiencies. Svensson teaches a laminating process, not a molding process, using a vertical manufacturing technique. Like Sanborn, Svensson does not teach or suggest that the technique could be applied to a molding process. To the contrary, attempting to adapt Svensson to a molding process as taught in Chin would directly contradict the basic and essential motivation described in Svensson for using the vertical manufacturing technique.

Svensson describes the use of belts and rollers to vertically laminate two sides of a core material using adhesives to remove entrapped air or gas. Such entrapped air or gas, as taught in Svensson, causes significant problems both from a manufacturing perspective and from a longevity perspective. The vertical manufacturing technique as taught in Svensson thus serves to eliminate this entrapped air or gas from the adhesive. By laminating the covering layers 18 to the core 10 vertically, the adhesive "in the inventive process will form a pool 24 at the nip between the core 10, and layer 18, as previously described, and this pool will result in that adhesive will follow into, and fill the surface cells of the core" thus allowing "any gas [to] freely depart upwardly and outwardly above the polyester pool 24 . . ." Col. 3, lines 3-10.

Svensson describes this freeing of entrapped gas from adhesives as essential to the invention. "What is essential here is that in the vertical process in accordance with the invention, the gas is enabled to depart from the core material 10 before the covering layer 18 is applied." Col. 3, lines 13-16. Thus, the vertical manufacturing technique described by Svensson was designed

specifically to provide an adhesive joint in laminating covering layers to diffusion-proof cores which is free from air or gas. Col. 1, lines 57-68; col. 2, lines 61-63.

Substituting a molding apparatus as taught in Chin for the rollers of Svensson as suggested by the Examiner would serve to entrap gas, not eliminate gas as Svensson teaches is necessary – no pool of adhesive could form at any "nip" when the part is being molded and no gas is enabled to depart from the rigidizing core before the sheeting layers are applied in the instant invention. Furthermore, the molding process of the instant invention is designed so that adhesives are not necessary. Indeed, the use of adhesives would increase costs and may be considered to be undesirable in many applications where the instant invention is to be used.

Nor is there any suggestion or motivation to combine the Svensson and Chin teachings. The Svensson vertical manufacturing technique was designed to provide a different solution for a different problem (gas entrapment) that would be exacerbated, not relieved, by incorporating the molding apparatus of Chin. Moreover, as Chin teaches that the core sections and the upper and lower skins sandwich must be pre-assembled before being placed between the mold halves, there is no reason to expect that a person of ordinary skill in the art would seek to combine with Chin the Svensson vertical lamination technique, which does the exact opposite.

Thus, Applicants respectfully request that the rejection of claims 5-10, 12 over Sanborn in view of Chen et al, and of claims 2-3 of Chin in view of Svensson be withdrawn, and that these claims, along with claims 1 and 11 discussed above, be allowed to issue.

Respectfully submitted,

Date: June 13, 2006

Grantland G. Drutchas
Registration No. 32,565